

PATENT ABSTRACTS OF JAPAN

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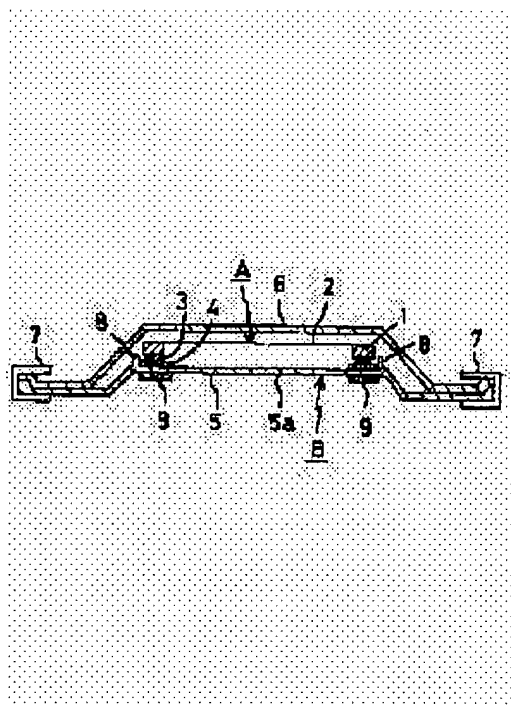
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(54) PELLICLE HOUSING STRUCTURE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a new pellicle housing structure capable of restricting a pellicle in a tray by using the attraction force of a magnet.

SOLUTION: The pellicle A is constituted of a frame 1, a pellicle film 2 bonded to the upper edge surface of the frame 1, adhesive material 3 applied to the lower end surface of the frame 1 and a protective film 4 stuck on the lower end surface of the frame 1 so as to protect the adhesive material 3, and as for the structure for storing the pellicle A in a case B constituted of the tray 5 and a cover 6, the frame 1 of the pellicle A is formed of a ferromagnetic metal, and also, a sheet like magnet 9 is attached to the rear side of the base part 5a of the tray 5.



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CLAIMS

[Claim(s)]

[Claim 1] A frame, the pellicle film adhered to the upper limb side of this frame, and the adhesion material with which the margo-inferior side of this frame was plastered, The pellicle which consists of a protection film which adhered to the margo-inferior side of a frame in order to protect this adhesion material In the structure contained in the case which consists of a tray and a free wheel plate, install a magnet in one one side of said pellicles and said trays, install a ferromagnetic in another side, or a magnet is installed in the both sides of said pellicle and said tray. Receipt structure of the pellicle characterized by making adsorption power with a magnet act between said pellicles and said trays, and making said pellicle fix to said case.

[Claim 2] Receipt structure of the pellicle of claim 1 characterized by having installed the magnet in said tray, and giving and constituting the ferromagnetic engine performance on either the frame of said pellicle, adhesion material or a protection film.

[Claim 3] Receipt structure of the pellicle of claim 1 characterized by having carried out the laminating of a sheet-like magnet or the ferromagnetic metal sheet to the top face or inferior surface of tongue of said tray, and constituting the protection film of said pellicle from a magnet sheet.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the receipt structure of the pellicle used in order to prevent that a foreign matter adheres to the photo mask used at the lithography process at the time of manufacturing LSI etc., or a reticle.

[0002]

[Description of the Prior Art] Conventionally, preventing adhesion of a photo mask and the foreign matter to a reticle in manufacture of a semiconductor circuit pattern etc. using the protection-against-dust means generally called a pellicle is performed (for example, JP,54-28718,B). It makes a protection film stick by predetermined adhesive strength on this adhesion material while a pellicle spreads transparent poly membranes (henceforth the pellicle film), such as a nitrocellulose below the inside and outside of 10 micrometers in thickness, or a cellulosic, to the upper limb side of a frame with a thickness of about several mm which has the configuration doubled with the configuration of a photo mask or a reticle, and pastes it and plasters the margo-inferior side of this frame with adhesion material.

[0003] Said adhesion material is for fixing a pellicle to a photo mask or a reticle, and a protection film protects the adhesion side of this adhesion material, in order to maintain the adhesive strength of this adhesion material until this adhesion material presents the business. In order to prevent preventing a foreign matter adhering to the pellicle film etc., or damaging a pellicle in carrying this pellicle from a manufacturer to a user, it is common to contain this pellicle in the case which consists of a tray and a free wheel plate, to contain into a protection-against-dust bag etc. further, and to carry.

[0004] Conventionally, receipt of the case of the pellicle which has the above-mentioned structure was performed as shown in drawing 4 thru/or drawing 6. That is, in drawing, one upper limb side of a frame 51 is pasted in the state of spreading (it stretched with the pin), the adhesion material 53 of suitable thickness is formed in other fields (margo-inferior side) of a frame 51, the protection film 54 is further stuck on the inferior surface of tongue of the adhesion material 53, and the pellicle film 52 constitutes the pellicle. This pellicle is placed so that the protection film 54 may touch on installation side 55a which is the flat field of a tray 55.

[0005] The movement toward right and left was restrained by post55b of the letter of a projection prepared in the tray 55, and the pellicle laid on installation side 55a of a tray 55 was contained by the case by putting a free wheel plate 56 from the upper part, and fixing four corners of a free wheel plate 56 and a tray 55 with a clip 57. Consequently, said pellicle was surrounded and restrained by slant-face 56a of a free wheel plate 56, post55b, and installation side 55a, and was in the condition of having been contained by the case.

[0006]

[Problem(s) to be Solved by the Invention] although conveyed in the state of the appropriate receipt to boil and by which the pellicle was restrained as mentioned above by slant-face 56a of the free wheel plate 56 of a case, post55b, and installation side 55a, at the time of transportation, it was unavoidable to get a certain vibration and an impact. In the restricted condition within the case of the conventional

pellicle, when the big clearance was between a pellicle and slant-face 56a of the free wheel plate 56 of a case, by the vibration at the time of transportation, and the impact, the free wheel plate 56 of a case was collided with, and the pellicle might wear out and carry out raising dust, in order [that this part is strong] to rub. In such a case, there was a problem which will lose the most important function to send a pellicle to a user in the condition that there is no foreign matter.

[0007] On the other hand, when the clearance between a pellicle and a case is lost (i.e., also when said slant-face 56a touches beforehand said frame 51 (or edge of said pellicle film 52)), wearing out the inside of slant-face 56a or the edge of said pellicle film 52, and generating a foreign matter with mutual contact pressure, is known on experience.

[0008] Then, the way made the most desirable in the receipt structure of this pellicle takes very few clearances between said pellicles and slant-face 56a of the free wheel plate 56 of said case. When said pellicle is specifically placed on a tray 55, a free wheel plate 56 is put and a free wheel plate 56 and a tray 55 are mutually fixed with a clip 57, it is the structure of preparing 0.1 thru/or an about 0.3mm clearance between slant-face 56a and the upper limit of a frame 1.

[0009] Bearing a certain amount of vibration and an impact by reservation of such a clearance is confirmed by the experiment of an artificer. However, when a big impact also in this case was got, there was a problem which carries out raising dust. furthermore, in order for the means which softens the impact which joins a case and a pellicle by the approaches (for example, the soft high foam of a shock effect etc. is used in large quantities) of packing to need few transportation means of vibration or an impact required or to secure the moderate clearance between the above-mentioned free wheel plate 56 and a pellicle, it is necessary to perform shaping of a tray 55 and a free wheel plate 56 in a high precision -- etc. -- there was a problem which is not very desirable in respect of cost. However, there was a problem that many of means, such as this, were also very difficult for guaranteeing not carrying out raising dust at all theoretically.

[0010] In order to improve the above-mentioned conventional trouble fundamentally, this invention person makes said tray install the protection film of a pellicle tentatively directly by predetermined adhesive strength, makes the pellicle contained by this in the case restrain in a case, already develops the completely new technique which enabled it to bear the vibration at the time of transportation, and an impact enough, and is doing patent application. (Japanese Patent Application No. No. 182459 [nine to]).

[0011] Although the technique which installs the above-mentioned pellicle tentatively directly by predetermined adhesive strength on a tray is a configuration which restrains a pellicle on a tray by using adhesion material or a binder, this invention offers the technique of the receipt structure of the completely new pellicle which restrained the pellicle on the tray by using a magnetic suction force, without using adhesion material or binders, such as this.

[0012] especially this invention prepares and combines the ferromagnetic of another side, or relates to the receipt structure of the pellicle of pellicles, such as this, and a tray which is alike, respectively, installs a magnet and fixed the pellicle to the tray using the suction force of magnet comrades, such as combination and this, or a magnet, and a ferromagnetic while it forms a magnet in either one side of a pellicle and a tray.

[0013]

[Means for Solving the Problem] The receipt structure of the pellicle concerning this invention is the technique developed in view of many above-mentioned conventional troubles. The summary of the 1st invention A frame, the pellicle film adhered to the upper limb side of this frame, and the adhesion material with which the margo-inferior side of this frame was plastered, The pellicle which consists of a protection film which adhered to the margo-inferior side of a frame in order to protect this adhesion material In the structure contained in the case which consists of a tray and a free wheel plate, install a magnet in one one side of said pellicles and said trays, install a ferromagnetic in another side, or a magnet is installed in the both sides of said pellicle and said tray. It is the receipt structure of the pellicle characterized by making adsorption power with a magnet act between said pellicles and said trays, and making said pellicle fix to said case.

[0014] Since the magnet was installed in one one side of said pellicles and said trays, and the ferromagnetic was installed on another side and it constituted from the 1st example of the 1st above-mentioned invention, a suction force can work between the magnet installed in one side, and the ferromagnetic installed in another side, and said pellicle can certainly be fixed in the condition of having been stabilized on said tray, according to an operation of this suction force.

[0015] Moreover, since the magnet was installed and constituted from the 2nd example of the 1st above-mentioned invention to the both sides of said pellicle and said tray, respectively, a suction force works between [, such as this,] magnets, and according to an operation of this suction force, said pellicle is stabilized on said tray and it can certainly fix.

[0016] The summary of the 2nd invention of this invention is the receipt structure of the pellicle of the 1st invention characterized by having installed the magnet in said tray, and giving and constituting the ferromagnetic engine performance on either the frame of said pellicle, adhesion material or a protection film.

[0017] In the 2nd above-mentioned invention, since the magnet was installed in said tray and the ferromagnetic engine performance was given to either the frame of said pellicle, adhesion material or a protection film, a suction force can work between the magnet by the side of a tray, and the ferromagnetic by the side of a pellicle, and said pellicle can certainly be fixed in the condition of having been stabilized on said tray, according to an operation of this suction force.

[0018] The summary of the 3rd invention of this invention is the receipt structure of the pellicle of the 1st invention characterized by having carried out the laminating of a sheet-like magnet or the ferromagnetic metal sheet to the top face or inferior surface of tongue of said tray, and constituting the protection film of said pellicle from a magnet sheet.

[0019] In the 3rd above-mentioned invention, since the laminating of a sheet-like magnet or the ferromagnetic metal sheet was carried out to the top face or the inferior surface of tongue of said tray, and it was installed in it and the protection film of said pellicle was constituted from a magnet sheet, a suction force works between the protection films formed with the sheet magnet by the side of a tray, or a ferromagnetic metal sheet and the magnet sheet of a pellicle, and according to an operation of this suction force, said pellicle is stabilized on said tray and it can certainly fix.

[0020]

[Embodiment of the Invention] the longitudinal section which shows the longitudinal-section explanatory view of the receipt structure of the pellicle of the 1st example which drawing 1 requires for this invention, and the important section of the receipt structure of the pellicle of the 2nd example where drawing 2 requires the flat-surface incision Fig. of the important section of the receipt structure of the pellicle of drawing 1 , drawing 3 (A), and (B) for this invention, respectively when one example of the receipt structure of the pellicle which starts this invention with drawing is explained concretely -- or it is a notching flat-surface explanatory view a part.

[0021] It is as follows when the 1st example of the receipt structure of the pellicle which starts this invention by drawing 1 and drawing 2 is explained. That is, Pellicle A consists of protection films 4 which adhered to the adhesion material 3, in order to protect the pellicle film 2 adhered to the upper limb side of a frame 1 and this frame 1, the adhesion material 3 applied by the margo-inferior side of this frame 1, and this adhesion material 3, as already explained in full detail. Although the adhesion material 3 was applied and formed in the margo-inferior side of a frame 1 in said example, when using the adhesion material 3 beforehand formed in the shape of a layer, a laminating may be carried out to the margo-inferior side of a frame 1, and you may only only stick on it (however, it names generically in this specification, saying only "it plastering" also including such a case).

[0022] Next, the pellicle A constituted as mentioned above is contained by the case B which consists of a tray 5 and a free wheel plate 6. Moreover, the clip 7 is attached in the corner section of a tray 5 and a free wheel plate 6, and it is fixed so that a free wheel plate 6 may not separate from a tray 5 with the clips 7, such as this. 8 is arranged near the periphery of the pellicle A which are eight posts by which the standing-up protrusion was carried out, and was laid in the upper front face of a tray 5 on the tray 5.

[0023] Moreover, especially the frame 1 of said pellicle A is formed with ferromagnetic metals, such as

iron, nickel, and martensite system stainless steel, and it is constituted so that it may be drawn in by the magnetism of the below-mentioned magnet. On the other hand, the sheet-like magnet 9 is attached in the inferior surface of tongue of pedestal 5a of a tray 5 which can lay Pellicle A. This sheet-like magnet 9 has said frame 1 and 4 rectangular-flask configuration where it corresponded.

[0024] The above-mentioned sheet magnet 9 can scour the approach of piercing a griddle in 4 rectangular-flask configuration, making magnetize in a field, and using as a permanent magnet, or ferromagnetic powder to plastics, and can fabricate it in 4 rectangular-flask configuration, and what has comparatively thin thickness can be easily manufactured by using the approach of making magnetize this thing in a field and using as a permanent magnet etc.

[0025] In the above-mentioned receipt structure of this invention, since the frame 1 of Pellicle A was formed with the ferromagnetic metal while attaching the sheet-like magnet 9 in pedestal 5a of a tray 5, it is fixable by laying Pellicle A in pedestal 5a of a tray 5 in the condition that Pellicle A was stabilized on the tray 5 in the suction-force operation of the sheet-like magnet 9 and a frame 1.

[0026] In the above-mentioned configuration, when the suction force of Pellicle A and a tray 5 is weak, there is a fear of Pellicle A breaking away from a tray 5 with the vibration at the time of transportation or an impact. When the suction force of Pellicle A and a tray 5 is too strong, there is a problem on which it becomes impossible for a user to take out Pellicle A from a tray 5 easily. According to the trial of this artificer, it is clear that there should generally just be a suction force of about 150g.

[0027] Since the weight of Pellicle A is about 15g, said suction force is the numeric value which can hold Pellicle A to the normal acceleration of about 10 G. Therefore, if the vibration at the time of transportation and an impact are less than [10G], it is not necessary to give packing special to the case B which contained Pellicle A. Moreover, what is necessary is just to use shock absorbing material etc. for the surroundings of Case B so that it may become less than [10G] when you need. Furthermore, the above-mentioned suction force of 150g is a numeric value which is completely satisfactory as force at the time of taking out Pellicle A from a tray 5.

[0028] Although ferromagnetism was given to Pellicle A by forming a frame 1 with a ferromagnetic metal in said example Ferromagnetism can be given to Pellicle A also by making the adhesion material 3 into spreading mold adhesion material which applies and fabricates liquefied objects, such as hot melt adhesion material, and making it this adhesion material at the ferromagnetic adhesion material 3 which mixes ferromagnetic powder, such as ferrite powder, and by which a magnet is adsorbed.

[0029] Furthermore, in order to give ferromagnetism to Pellicle A, it can also constitute by forming the protection film 4 with a ferromagnetic metal thin film with the thickness of about dozens of microns, or applying to the protection film 4 the coating which mixed ferromagnetic powder.

[0030] In said example, although the sheet-like magnet 9 was attached in the inferior surface of tongue of pedestal 5a of a tray 5, it is also possible to attach in the top face of pedestal 5a, and to constitute. In attaching the sheet-like magnets 9, such as this, in a tray 5, it can fix easily with adhesives etc. Although the sheet-like magnet 9 was made into the configuration corresponding to the perimeter of Pellicle A in said example, arranging so that it may correspond partially is also possible. Moreover, when attaching the sheet-like magnet 9 in the inferior surface of tongue of a pedestal, it is also possible to make thin some trays 5 on which the sheet-like magnet 9 is contacted, to make small distance of Pellicle A and the sheet-like magnet 9, and to strengthen both suction force.

[0031] In said example, although the magnet was formed in the tray 5 by attaching the sheet-like magnet 9 in pedestal 5a of a tray 5, as shown in the 2nd example of drawing 3 (A) and (B), it is also possible to insert the cylindrical sintered magnet 10 of a minor diameter in one into the inferior surface of tongue of pedestal 5a of a tray 5, and to constitute it. In this case, in case a tray 5 is fabricated by the injection-molding method, the cylindrical sintered magnet 10 is beforehand inserted into shaping metal mold, and when carrying out injection molding of the tray 5, it can manufacture by the insertion method which embeds the cylindrical sintered magnet 10 into [those] some of.

[0032] The approach of carrying out ** arrival of the cylindrical sintered magnet 10 other than the above-mentioned insert molding mechanically by the approach of using and pasting up a binder, the snap fitting approach, the approach of closing and inserting in, etc. is also possible. Moreover, it is also

possible to form tray 5 self with a ferromagnetic metallic material, and for it to be magnetized all over a magnetic field, and to use tray 5 itself as a magnet, without using a means to attach a magnet in a tray 5 as mentioned above.

[0033] In said example, although it was made to make Pellicle A stick to a tray 5 by attaching a magnet in a tray 5 and preparing a ferromagnetic in Pellicle A, it is also possible to constitute the protection film 4 of Pellicle A from a magnet sheet, for example, and to form a magnet in Pellicle A side. That is, when using the protection film 4 as a magnet, after mixing a ferromagnetic with plastics, it can fabricate in the shape of a sheet, and can constitute by being magnetized all over a magnetic field.

[0034] Thus, when a magnet is formed in Pellicle A side, a ferromagnetic can be prepared and constituted in a tray 5 side. That is, it can constitute by carrying out the laminating of a ferromagnetic metal sheet or the ferromagnetic metal film, for example to the top face of pedestal 5a of a tray 5. As mentioned above, it is also possible to form and combine a magnet also with Pellicle A side, forming a magnet in a tray 5 side.

[0035] With the structure where the magnet is attached in the inferior surface of tongue of a tray 5, for example, since it is fixed to the tray 5 when Pellicle A uses magnetic adsorption power in the case of the receipt structure of the pellicle concerning this invention, before taking out Pellicle A from a tray 5, by removing a magnet from the inferior surface of tongue of a tray 5, Pellicle A can be released from a tray 5 and can be taken out easily.

[0036]

[Effect of the Invention] Since the receipt structure of the pellicle concerning this invention has an above-mentioned configuration and an above-mentioned operation, it has the following great effectiveness.

[0037] Since in containing a pellicle in the case which consists of a tray and a free wheel plate it fixed to this tray and the pellicle was constituted from this invention using the magnetic suction force, in case a pellicle is conveyed, a pellicle can prevent contacting in a case strongly by vibration or the impact.

[0038] Therefore, it can prevent that damage the pellicle itself, or a pellicle collides in a case strongly, **** occurs, the strong small dust of a pellicle and a case twisted for rubbing is generated, and this dust adheres to a pellicle. Moreover, in this invention, since the pellicle was restrained on the tray with the magnetic suction force, a pellicle can be easily taken out from this tray.

[0039] In restraining a pellicle on a tray with a magnetic suction force, it can carry out easily and cheaply by giving the ferromagnetic engine performance to either the frame by the side of a pellicle, adhesion material or a protection film, or forming a protection film with a magnet sheet, installing a magnet or giving the ferromagnetic engine performance to a tray side.

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TECHNICAL FIELD

[Field of the Invention] This invention relates to the receipt structure of the pellicle used in order to prevent that a foreign matter adheres to the photo mask used at the lithography process at the time of manufacturing LSI etc., or a reticle.

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PRIOR ART

[Description of the Prior Art] Conventionally, preventing adhesion of a photo mask and the foreign matter to a reticle in manufacture of a semiconductor circuit pattern etc. using the protection-against-dust means generally called a pellicle is performed (for example, JP,54-28718,B). It makes a protection film stick by predetermined adhesive strength on this adhesion material while a pellicle spreads transparent poly membranes (henceforth the pellicle film), such as a nitrocellulose below the inside and outside of 10 micrometers in thickness, or a cellulosic, to the upper limb side of a frame with a thickness of about several mm which has the configuration doubled with the configuration of a photo mask or a reticle, and pastes it and plasters the margo-inferior side of this frame with adhesion material.

[0003] Said adhesion material is for fixing a pellicle to a photo mask or a reticle, and a protection film protects the adhesion side of this adhesion material, in order to maintain the adhesive strength of this adhesion material until this adhesion material presents the business. In order to prevent preventing a foreign matter adhering to the pellicle film etc., or damaging a pellicle in carrying this pellicle from a manufacturer to a user, it is common to contain this pellicle in the case which consists of a tray and a free wheel plate, to contain into a protection-against-dust bag etc. further, and to carry.

[0004] Conventionally, receipt of the case of the pellicle which has the above-mentioned structure was performed as shown in drawing 4 thru/or drawing 6. That is, in drawing, one upper limb side of a frame 51 is pasted in the state of spreading (it stretched with the pin), the adhesion material 53 of suitable thickness is formed in other fields (margo-inferior side) of a frame 51, the protection film 54 is further stuck on the inferior surface of tongue of the adhesion material 53, and the pellicle film 52 constitutes the pellicle. This pellicle is placed so that the protection film 54 may touch on installation side 55a which is the flat field of a tray 55.

[0005] The movement toward right and left was restrained by post55b of the letter of a projection prepared in the tray 55, and the pellicle laid on installation side 55a of a tray 55 was contained by the case by putting a free wheel plate 56 from the upper part, and fixing four corners of a free wheel plate 56 and a tray 55 with a clip 57. Consequently, said pellicle was surrounded and restrained by slant-face 56a of a free wheel plate 56, post55b, and installation side 55a, and was in the condition of having been contained by the case.

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EFFECT OF THE INVENTION

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[0037] Since in containing a pellicle in the case which consists of a tray and a free wheel plate it fixed to this tray and the pellicle was constituted from this invention using the magnetic suction force, in case a pellicle is conveyed, a pellicle can prevent contacting in a case strongly by vibration or the impact.

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TECHNICAL PROBLEM

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[0007] On the other hand, when the clearance between a pellicle and a case is lost (i.e., also when said slant-face 56a touches beforehand said frame 51 (or edge of said pellicle film 52)), wearing out the inside of slant-face 56a or the edge of said pellicle film 52, and generating a foreign matter with mutual contact pressure, is known on experience.

[0008] Then, the way made the most desirable in the receipt structure of this pellicle takes very few clearances between said pellicles and slant-face 56a of the free wheel plate 56 of said case. When said pellicle is specifically placed on a tray 55, a free wheel plate 56 is put and a free wheel plate 56 and a tray 55 are mutually fixed with a clip 57, it is the structure of preparing 0.1 thru/or an about 0.3mm clearance between slant-face 56a and the upper limit of a frame 1.

[0009] Bearing a certain amount of vibration and an impact by reservation of such a clearance is confirmed by the experiment of an artificer. However, when a big impact also in this case was got, there was a problem which carries out raising dust. furthermore, in order for the means which softens the impact which joins a case and a pellicle by the approaches (for example, the soft high foam of a shock effect etc. is used in large quantities) of packing to need few transportation means of vibration or an impact required or to secure the moderate clearance between the above-mentioned free wheel plate 56 and a pellicle, it is necessary to perform shaping of a tray 55 and a free wheel plate 56 in a high precision -- etc. -- there was a problem which is not very desirable in respect of cost. However, there was a problem that many of means, such as this, were also very difficult for guaranteeing not carrying out raising dust at all theoretically.

[0010] In order to improve the above-mentioned conventional trouble fundamentally, this invention person makes said tray install the protection film of a pellicle tentatively directly by predetermined adhesive strength, makes the pellicle contained by this in the case restrain in a case, already develops the completely new technique which enabled it to bear the vibration at the time of transportation, and an impact enough, and is doing patent application. (Japanese Patent Application No. No. 182459 [nine to]).

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MEANS

[Means for Solving the Problem] The receipt structure of the pellicle concerning this invention is the technique developed in view of many above-mentioned conventional troubles. The summary of the 1st invention A frame, the pellicle film adhered to the upper limb side of this frame, and the adhesion material with which the margo-inferior side of this frame was plastered, The pellicle which consists of a protection film which adhered to the margo-inferior side of a frame in order to protect this adhesion material In the structure contained in the case which consists of a tray and a free wheel plate, install a magnet in one one side of said pellicles and said trays, install a ferromagnetic in another side, or a magnet is installed in the both sides of said pellicle and said tray. It is the receipt structure of the pellicle characterized by making adsorption power with a magnet act between said pellicles and said trays, and making said pellicle fix to said case.

[0014] Since the magnet was installed in one one side of said pellicles and said trays, and the ferromagnetic was installed on another side and it constituted from the 1st example of the 1st above-mentioned invention, a suction force can work between the magnet installed in one side, and the ferromagnetic installed in another side, and said pellicle can certainly be fixed in the condition of having been stabilized on said tray, according to an operation of this suction force.

[0015] Moreover, since the magnet was installed and constituted from the 2nd example of the 1st above-mentioned invention to the both sides of said pellicle and said tray, respectively, a suction force works between [, such as this,] magnets, and according to an operation of this suction force, said pellicle is stabilized on said tray and it can certainly fix.

[0016] The summary of the 2nd invention of this invention is the receipt structure of the pellicle of the 1st invention characterized by having installed the magnet in said tray, and giving and constituting the ferromagnetic engine performance on either the frame of said pellicle, adhesion material or a protection film.

[0017] In the 2nd above-mentioned invention, since the magnet was installed in said tray and the ferromagnetic engine performance was given to either the frame of said pellicle, adhesion material or a protection film, a suction force can work between the magnet by the side of a tray, and the ferromagnetic by the side of a pellicle, and said pellicle can certainly be fixed in the condition of having been stabilized on said tray, according to an operation of this suction force.

[0018] The summary of the 3rd invention of this invention is the receipt structure of the pellicle of the 1st invention characterized by having carried out the laminating of a sheet-like magnet or the ferromagnetic metal sheet to the top face or inferior surface of tongue of said tray, and constituting the protection film of said pellicle from a magnet sheet.

[0019] In the 3rd above-mentioned invention, since the laminating of a sheet-like magnet or the ferromagnetic metal sheet was carried out to the top face or the inferior surface of tongue of said tray, and it was installed in it and the protection film of said pellicle was constituted from a magnet sheet, a suction force works between the protection films formed with the sheet magnet by the side of a tray, or a ferromagnetic metal sheet and the magnet sheet of a pellicle, and according to an operation of this suction force, said pellicle is stabilized on said tray and it can certainly fix.

[0020]

[Embodiment of the Invention] the longitudinal section which shows the longitudinal-section explanatory view of the receipt structure of the pellicle of the 1st example which drawing 1 requires for this invention, and the important section of the receipt structure of the pellicle of the 2nd example where drawing 2 requires the flat-surface incision Fig. of the important section of the receipt structure of the pellicle of drawing 1, drawing 3 (A), and (B) for this invention, respectively when one example of the receipt structure of the pellicle which starts this invention with drawing is explained concretely -- or it is a notching flat-surface explanatory view a part.

[0021] It is as follows when the 1st example of the receipt structure of the pellicle which starts this invention by drawing 1 and drawing 2 is explained. That is, Pellicle A consists of protection films 4 which adhered to the adhesion material 3, in order to protect the pellicle film 2 adhered to the upper limb side of a frame 1 and this frame 1, the adhesion material 3 applied by the margo-inferior side of this frame 1, and this adhesion material 3, as already explained in full detail. Although the adhesion material 3 was applied and formed in the margo-inferior side of a frame 1 in said example, when using the adhesion material 3 beforehand formed in the shape of a layer, a laminating may be carried out to the margo-inferior side of a frame 1, and you may only stick on it (however, it names generically in this specification, saying only "it plastering" also including such a case).

[0022] Next, the pellicle A constituted as mentioned above is contained by the case B which consists of a tray 5 and a free wheel plate 6. Moreover, the clip 7 is attached in the corner section of a tray 5 and a free wheel plate 6, and it is fixed so that a free wheel plate 6 may not separate from a tray 5 with the clips 7, such as this. 8 is arranged near the periphery of the pellicle A which are eight posts by which the standing-up protrusion was carried out, and was laid in the upper front face of a tray 5 on the tray 5.

[0023] Moreover, especially the frame 1 of said pellicle A is formed with ferromagnetic metals, such as iron, nickel, and martensite system stainless steel, and it is constituted so that it may be drawn in by the magnetism of the below-mentioned magnet. On the other hand, the sheet-like magnet 9 is attached in the inferior surface of tongue of pedestal 5a of a tray 5 which can lay Pellicle A. This sheet-like magnet 9 has said frame 1 and 4 rectangular-flask configuration where it corresponded.

[0024] The above-mentioned sheet magnet 9 can scour the approach of piercing a griddle in 4 rectangular-flask configuration, making magnetize in a field, and using as a permanent magnet, or ferromagnetic powder to plastics, and can fabricate it in 4 rectangular-flask configuration, and what has comparatively thin thickness can be easily manufactured by using the approach of making magnetize this thing in a field and using as a permanent magnet etc.

[0025] In the above-mentioned receipt structure of this invention, since the frame 1 of Pellicle A was formed with the ferromagnetic metal while attaching the sheet-like magnet 9 in pedestal 5a of a tray 5, it is fixable by laying Pellicle A in pedestal 5a of a tray 5 in the condition that Pellicle A was stabilized on the tray 5 in the suction-force operation of the sheet-like magnet 9 and a frame 1.

[0026] In the above-mentioned configuration, when the suction force of Pellicle A and a tray 5 is weak, there is a fear of Pellicle A breaking away from a tray 5 with the vibration at the time of transportation or an impact. When the suction force of Pellicle A and a tray 5 is too strong, there is a problem on which it becomes impossible for a user to take out Pellicle A from a tray 5 easily. According to the trial of this artificer, it is clear that there should generally just be a suction force of about 150g.

[0027] Since the weight of Pellicle A is about 15g, said suction force is the numeric value which can hold Pellicle A to the normal acceleration of about 10 G. Therefore, if the vibration at the time of transportation and an impact are less than [10G], it is not necessary to give packing special to the case B which contained Pellicle A. Moreover, what is necessary is just to use shock absorbing material etc. for the surroundings of Case B so that it may become less than [10G] when you need. Furthermore, the above-mentioned suction force of 150g is a numeric value which is completely satisfactory as force at the time of taking out Pellicle A from a tray 5.

[0028] Although ferromagnetism was given to Pellicle A by forming a frame 1 with a ferromagnetic metal in said example Ferromagnetism can be given to Pellicle A also by making the adhesion material 3 into spreading mold adhesion material which applies and fabricates liquefied objects, such as hot melt

adhesion material, and making it this adhesion material at the ferromagnetic adhesion material 3 which mixes ferromagnetic powder, such as ferrite powder, and by which a magnet is adsorbed.

[0029] Furthermore, in order to give ferromagnetism to Pellicle A, it can also constitute by forming the protection film 4 with a ferromagnetic metal thin film with the thickness of about dozens of microns, or applying to the protection film 4 the coating which mixed ferromagnetic powder.

[0030] In said example, although the sheet-like magnet 9 was attached in the inferior surface of tongue of pedestal 5a of a tray 5, it is also possible to attach in the top face of pedestal 5a, and to constitute. In attaching the sheet-like magnets 9, such as this, in a tray 5, it can fix easily with adhesives etc. Although the sheet-like magnet 9 was made into the configuration corresponding to the perimeter of Pellicle A in said example, arranging so that it may correspond partially is also possible. Moreover, when attaching the sheet-like magnet 9 in the inferior surface of tongue of a pedestal, it is also possible to make thin some trays 5 on which the sheet-like magnet 9 is contacted, to make small distance of Pellicle A and the sheet-like magnet 9, and to strengthen both suction force.

[0031] In said example, although the magnet was formed in the tray 5 by attaching the sheet-like magnet 9 in pedestal 5a of a tray 5, as shown in the 2nd example of drawing 3 (A) and (B), it is also possible to insert the cylindrical sintered magnet 10 of a minor diameter in one into the inferior surface of tongue of pedestal 5a of a tray 5, and to constitute it. In this case, in case a tray 5 is fabricated by the injection-molding method, the cylindrical sintered magnet 10 is beforehand inserted into shaping metal mold, and when carrying out injection molding of the tray 5, it can manufacture by the insertion method which embeds the cylindrical sintered magnet 10 into [those] some of.

[0032] The approach of carrying out ** arrival of the cylindrical sintered magnet 10 other than the above-mentioned insert molding mechanically by the approach of using and pasting up a binder, the snap fitting approach, the approach of closing and inserting in, etc. is also possible. Moreover, it is also possible to form tray 5 self with a ferromagnetic metallic material, and for it to be magnetized all over a magnetic field, and to use tray 5 itself as a magnet, without using a means to attach a magnet in a tray 5 as mentioned above.

[0033] In said example, although it was made to make Pellicle A stick to a tray 5 by attaching a magnet in a tray 5 and preparing a ferromagnetic in Pellicle A, it is also possible to constitute the protection film 4 of Pellicle A from a magnet sheet, for example, and to form a magnet in Pellicle A side. That is, when using the protection film 4 as a magnet, it can fabricate by Ushiro who mixed the ferromagnetic with plastics in the shape of a sheet, and can constitute by being magnetized all over a magnetic field.

[0034] Thus, when a magnet is formed in Pellicle A side, a ferromagnetic can be prepared and constituted in a tray 5 side. That is, it can constitute by carrying out the laminating of a ferromagnetic metal sheet or the ferromagnetic metal film, for example to the top face of pedestal 5a of a tray 5. As mentioned above, it is also possible to form and combine a magnet also with Pellicle A side, forming a magnet in a tray 5 side.

[0035] With the structure where the magnet is attached in the inferior surface of tongue of a tray 5, for example, since it is fixed to the tray 5 when Pellicle A uses magnetic adsorption power in the case of the receipt structure of the pellicle concerning this invention, before taking out Pellicle A from a tray 5, by removing a magnet from the inferior surface of tongue of a tray 5, Pellicle A can be released from a tray 5 and can be taken out easily.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the longitudinal-section explanatory view of the receipt structure of the pellicle of the 1st example concerning this invention.

[Drawing 2] It is the flat-surface incision Fig. of the important section of the receipt structure of the pellicle of drawing 1.

[Drawing 3] the longitudinal section which shows the important section of the receipt structure of the pellicle of the 2nd example which drawing 3 (A) and (B) require for this invention, respectively -- or it is a notching flat-surface explanatory view a part.

[Drawing 4] It is the longitudinal-section explanatory view showing the example of receipt of the pellicle of the conventional example.

[Drawing 5] It is a longitudinal-section expansion explanatory view in the condition of having expanded the important section of drawing 4.

[Drawing 6] It is the flat-surface explanatory view of an important section showing the receipt condition of the pellicle of drawing 4.

[Description of Notations]

A Pellicle B Case

1 Frame 2 Pellicle Film

3 Adhesion Material 4 Protection Film

5 Tray 5a Pedestal

6 Free Wheel Plate 7 Clip

8 Post 9 Sheet-like Magnet

10 Cylindrical Sintered Magnet 11 Height

51 Frame 52 Pellicle Film

53 Adhesion Material 54 Protection Film

55 Tray 56 Free Wheel Plate

57 Clip

[Translation done.]

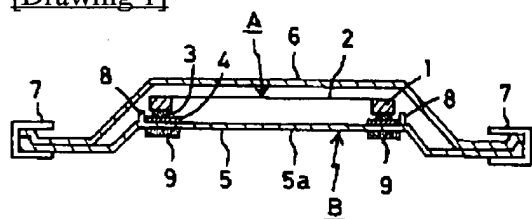
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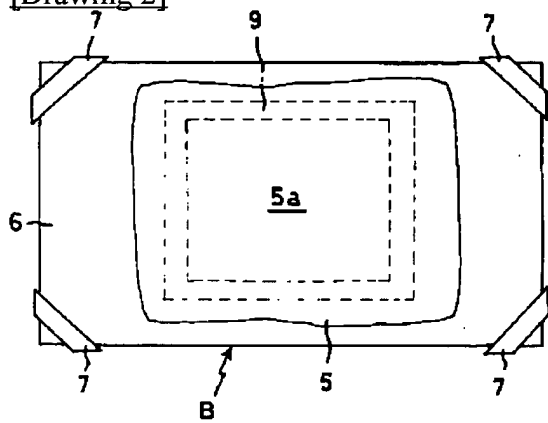
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DRAWINGS

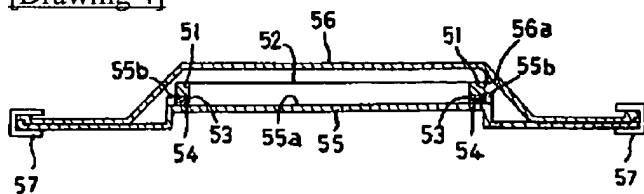
[Drawing 1]



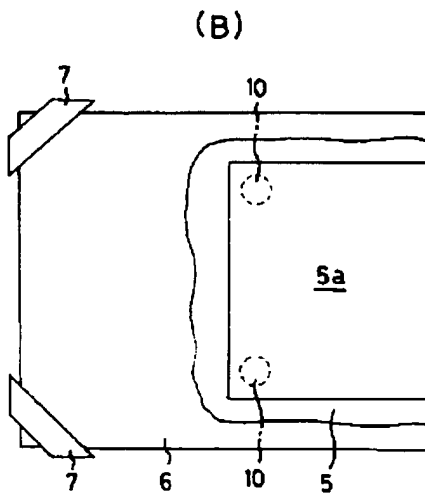
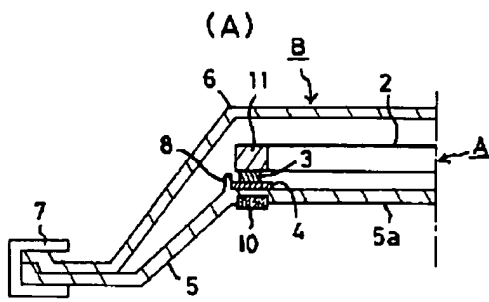
[Drawing 2]



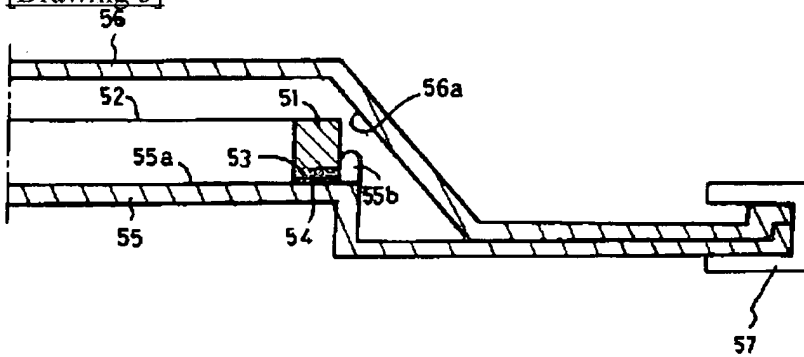
[Drawing 4]



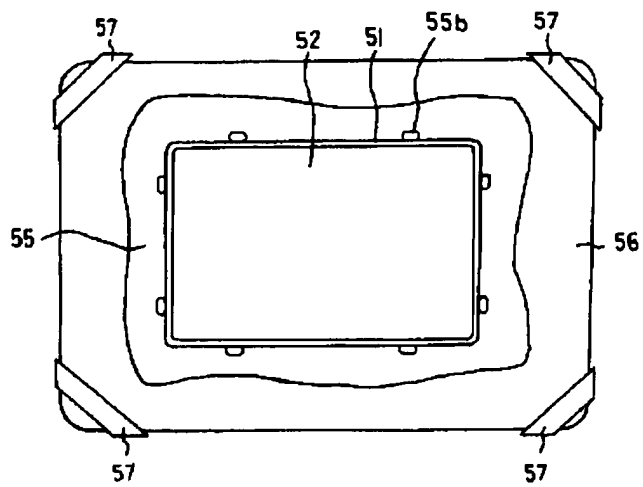
[Drawing 3]



[Drawing 5]



[Drawing 6]



[Translation done.]